PUBLIC HEALTH Bulletin

COUNTY OF ORANGE • HEALTH CARE AGENCY

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West Nile Virus—Not *IF*, but *WHEN*

Experts believe that it is only a matter of time before West Nile Virus (WNV) appears in Orange County. However, there is no way to predict its arrival with certainty, and it could make an appearance as early as this summer or fall.

West Nile Virus in the United States

WNV was first identified in the United States in the summer of 1999 in New York City where it was found in a 75-mile radius centered in Queens. Sixty-two people were hospitalized and seven victims died. On Long Island, nine horses and many birds also died. The virus survived the winter in hibernating mosquitoes and reappeared in the year 2000. Surveillance in the year 2000 documented the spread of the virus to 12 states from New Hampshire to North Carolina; however, there were fewer severe illnesses among humans, with only two deaths. In 2001, WNV spread to 27 states and Washington, D.C., and crossed the Mississippi River. There were 48 human cases reported, including five deaths. Patients had a median age of 70 (range 36-90).

Onsets occurred from July 13 through October 15. Among the bird population, 4,604 crows and 1,497 other species of birds were reported with WNV infection. A total of 189 horses were identified with WNV infection. WNV has been found in at least 14 mosquito species in the United States.

The strain of WNV isolated in the US since 1999 is most closely related to a strain found in Israel, where epidemics occurred in the 1950s and in 1980. In 1997 and 1998, WNV caused illness and death in domestic geese in Israel. Only three human cases were recognized in Israel in the 1990s; however, an outbreak with 417 confirmed cases occurred in the year 2000.

Clinical findings[1]

WNV infection is typically a febrile illness with abrupt onset. Of the 19 laboratory-confirmed hospitalized patients from the summer and fall of 2000 in New York City and New Jersey, nine had encephalitis, eight had meningitis, and two had meningoencephalitis. The median age of the patients was 63 (range 36-87). The median time from symptom onset to hospitalization was three days (range 0-48 days). Five patients were admitted to an Intensive Care Unit, and two required mechanical ventilation. All but two patients had fever, either upon arrival at the emergency department (N=14) or during their admission (N=3). A total of 16 patients (84%) presented with at least one neurologic complaint (headache—58%, change in mental status—58%, muscle weakness—42%, stiff neck—32%, or photophobia—32%). In addition, 11 patients (58%) had at least one gastrointestinal symptom or abnormal findings on abdominal exam. Three patients had rash (truncal and either macular or popular in the two patients for whom descriptions were recorded). Severe motor weakness was reported less frequently in these patients (16%) than in 1999 (27%).

Cerebrospinal fluid (CSF) pleocytosis was detected in 17 patients. Nine of 15 patients in whom a CSF differential cell count was performed had at least 50% neutrophils, although this was not associated with the presentation of encephalitis. CSF protein was elevated (mean 111 mg/dL), and glucose was normal or near normal in all 19 patients.

In 18 cases, either computerized tomography (CT), magnetic resonance imaging (MRI) or both were performed. Abnormalities were noted in 10 (56%). In eight patients the abnormalities were not acute; however, seven of these eight patients had encephalitis (compared with 2 of 8 patients with normal studies). Two patients had acute inflammatory changes.

Full recovery was reported in 7 patients (37%), 10 patients (53%) survived but did not recover their full pre-illness functioning, and two (11%) died.

Human serosurveys, United States, 1999 and 2000

There is a high ratio of unapparent or mildly symptomatic infection to hospitalized cases of WNV infection. A serosurvey in Queens, New York, in 1999, the epicenter of the outbreak, showed a seropositivity rate of 2.6%. For every hospitalized case there were 24 mild febrile and 110 subclinical illnesses.

In three areas where WNV activity was intense in bird and mosquito populations during the year 2000, serosurveys found lower levels of

(Continued on Page 3)

[1]Weiss D, Carr D, Kellachan J, et al. *Clinical Findings of West Nile Virus Infection in Hospitalized Patients*, New York and New Jersey, 2000. *Emerging Infectious Diseases*; 7(4):654-658.
[2]CDC. *Serosurveys fro West Nile Virus Infection—New York and Connecticut Counties*, 2000. MMWR;50(3)37-39.

This Issue . . .

Bioterrorism resources updated to maintain preparedeness

The list of bioterrorism resources available to clinicians continues to grow as health officials on the federal, state and local level respond to meet the demand for information.

The Centers for Disease Control and Prevention (CDC) has unveiled a redesigned website offering information for both health professionals and the public. The CDC website, located at www.bt.cdc.gov, contains information on health threats that could arise from exposure to biological, chemical and radiological agents. It is the official federal site for medical, laboratory, and public health professionals to reference for protocols related to health threats such as anthrax.

The State Department of Health Services' website, located at www.dhs.cahwnet.gov/bioterrorism/, includes links to helpful resources including multi-lingual fact sheets for the public about biological and chemical agents.

The Orange County Health Care Agency's bioterrorism website, found at www.oc.ca.gov/hca/public/bio.htm, includes resources like a PowerPoint tutorial on bioterrorism agents for physicians and hospitals. Also included is a 'References and Resources' section that provides convenient links to bioterrorism information on the Internet. Information on reporting a suspected case of bioterrorism to the Health Care Agency is also found on the site.

Other Bioterrorism resources on the Internet:

- Medline—Site includes a list of resource material on biological and chemical terrorism
  http://www.nlm.nih.gov/medlineplus/biologicalandchemicalweapons.html
- UCLA School of Public Health Department of Epidemiology—Includes information for health professionals, students and the public
  http://www.ph.ucla.edu/epi/bioter/bioterrorism.html
- California Medical Association—Bioterrorism resource center includes links to webcasts and transcripts
  http://www.cmanet.org/publicdoc.cfm/534/207/GENER/677
- Journal of the American Medical Association—A compilation of all JAMA articles on bioterrorism
  http://pubs.ama-assn.org/bioterr.html
- American Academy of Family Physicians—Home study audio program on the role of the Family Physician in Biochemical Terrorism Defense
  www.aafp.org/hssa/biochem/
- California Office of Emergency Services—Downloadable brochure on preparedness and a Potassium Iodide (KI) fact sheet
  www.oes.ca.gov/
- American College of Radiology—Information on physician and hospital preparedeness for radiological disasters
  www.acr.org/dyna/?doc=departments/educ/disaster_planning.html

Resistant gonorrhea cases on the increase

Again in 2001, the Orange County Public Health Lab identified an increased number of cases of fluoroquinolone-resistant gonorrhea, making the use of other, more expensive antibiotics a consideration in treatment.

Last year, eight cases of fluoroquinolone-resistant gonorrhea were detected in Orange County. This is an increase from six cases reported during 2000. During the first two months of 2002, three additional cases have been identified.

The problem of gonorrhea treatment resistance is most severe in Hawaii, where it was reported in 20.7 percent of patients during 2001. Given the frequent travel between Hawaii and California, the Centers for Disease Control and Prevention (CDC) has recommended that healthcare providers ask patients with gonorrhea if they or their sex partners could have acquired the disease in Hawaii, other Pacific islands or in Asia, where resistant gonorrhea is common. If there is a possibility the disease was acquired in one of these areas, patients should be treated with cefixime or ceftriaxone, drugs recommended for treating gonorrhea to which no resistance has been reported.

In cases of treatment failure, clinicians should obtain a gonorrhea culture before retreatment with cefixime or ceftriaxone. Any isolates from the gonorrhea culture should be forwarded to the Orange County Public Health Laboratory for susceptibility testing. Gonorrhea treatment failures should be reported to the Orange County STD Medical Director at (714) 834-7991.

HIV reporting requirement nears

Beginning July 1, 2002, human immunodeficiency virus (HIV) infection will join the list of reportable diseases in California. The draft regulations for HIV reporting are currently in their final review stage. Under Section 2642 of the California Code of Regulations, Title 17, HIV will be reportable via a non-name code (unique identifier).

HIV reporting will provide better epidemiological data for persons at all stages of the disease, define the incidence rate and trends for HIV, and demonstrate the impact that the epidemic has on the health care system.

Similar to AIDS reporting, health care providers and laboratories must report individuals with HIV infection within 7 calendar days. Tests indicative of HIV infection will include, but are not limited to, HIV antigen, HIV antibody, and quantitative HIV (viral load) tests. The HIV report will be two pages and require similar demographics and data as is reported for AIDS cases. HIV reporting will not replace AIDS case reporting procedures. New AIDS cases must still be reported using previously established procedures.

Reporting HIV-infected persons who do not have AIDS will be by a non-name code. This code will consist of the following:

- Soundex (an algorithmic code based on patient's last name that will be provided by the laboratory on positive HIV testing results)
- Complete birth date (mm/dd/yyyy)
- Gender
- Last four digits of the Social Security number (if the Social Security number is unknown, four zeros will be used)

HIV and AIDS cases should be reported to the Orange County Health Care Agency AIDS Surveillance and Monitoring Program. In addition, surveillance staff will be available to assist with the reporting process. If you would like a brief slide presentation regarding HIV reporting, please contact surveillance staff. The AIDS Surveillance and Monitoring Program may be reached at the following:

Orange County Health Care Agency
AIDS Surveillance and Monitoring Program
Brandon Page, Program Supervisor
1725-B West 17th Street
P.O. Box 6099, Bldg. 50-Annex
Santa Ana, CA 92706
(714) 834-8131

To: Orange County Physicians

From: Mark Horton, M.D., M.S.P.H., County Health Officer

As demonstrated with the recent bioterrorist attack using anthrax, the ability to rapidly communicate urgent information to physicians would be of great value. Orange County Public Health is requesting that all Orange County physicians provide us with an e-mail address and fax number so that we can provide urgent, crucial information directly to you.

If you previously responded to the joint letter from us and the Orange County Medical Association, sent in November 2001, you need not respond again unless your fax number, e-mail, or office address has changed.

Our commitment to you is that we will make use of this information judiciously and not share it with anyone without your express permission. The ultimate goal is a system of two-way communication with the Orange County medical community.

Please provide us with the following information:

Last name: _____

First name: _____

Middle name: _____

e-mail address: _____

Fax number: _____

Preferred method of communication: ❑ By e-mail ❑ By fax

Specialty: _____

Office address: _____

City: _____ Zip code: _____

Office telephone: _____

Please return by: Fax: (714) 834-8196

Mail: HCA, P.O. Box 6128, Santa Ana, CA 92706-0128

Or you can e-mail us the information: epi@hca.co.orange.ca.us

HCA's Bioterrorism Web site is found at: http://www.oc.ca.gov/hca/public/bio.htm

Thank you for your participation in this important endeavor.

Help available in diagnosing foodborne illnesses

A resource jointly developed for primary care physicians by several national groups provides an essential reference on recognizing and reporting cases of foodborne illness.

The report entitled *Diagnosis and Management of Foodborne Illnesses* was developed by organizations including the American Medical Association, the Food and Drug Administration's Center for Food Safety and the U.S. Department of Agriculture's Food Safety and Inspection Service. The report is available through the Centers for Disease Control's *Morbidity and Mortality Weekly Report* and is found on line at http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5002a1.htm.

CDC estimates that each year more than 76 million people get sick, more than 300,000 are hospitalized and as many as 5,000 Americans die as a result of foodborne illnesses. Especially vulnerable are the very young, the elderly and the immunocompromised. With increasing travel and trade opportunities, the risk of contracting and spreading a foodborne illness now exists locally, regionally and even globally.

The guide recognizes that primary care physicians may see the first presented case of a foodborne illness that may be part of a larger outbreak. Physicians are urged to consider the potential for a foodborne etiology in a patient's illness, realize that not all cases of foodborne illness have gastrointestinal tract symptoms and to obtain stool cultures when possible and appropriate. The report also urges primary care physicians to report suspected cases to local public health officials and to discuss with patients ways to avoid food-related illnesses.

In addition to the conditions designated as notifiable at the national level, the State of California has additional requirements, which are included in Table 1. Outbreaks, regardless of etiology, are included in the list of reportable diseases.

Internet resources on foodborne illnesses include:

- Center for Food Safety and Applied Nutrition, Food and Drug Administration
  http://www.fda.gov/cfsan
- Food Safety and Inspection Service, US Department of Agriculture
  http://www.usda.gov/fsis

Table 1: Surveillance and Reporting of Foodborne Illnesses

The following list provides current reporting requirements for foodborne diseases and conditions in the County of Orange:

Notifiable Bacterial Foodborne Disease and Conditions
- Botulism
- Brucellosis
- Cholera
- *Escherichia coli* O157:H7
- Hemolytic uremic syndrome
- Salmonellosis
- Shigellosis
- Typhoid fever

Notifiable Viral Foodborne Disease and Conditions
- Hepatitis A

Notifiable Parasitic Foodborne Disease and Conditions
- Cryptosporidiosis
- Cyclosporiasis
- Trichinosis

WNV *(Continued from Page 1)*

antibodies (0-0.46%) than that in Queens in 1999[2]. The reason for the lower rates of infection despite significant viral activity remain unknown.

Surveillance for WNV in Orange County and California

The Orange County Vector Control District (OCVCD) and Orange County Animal Care Services are performing surveillance activities for WNV in mosquitoes and animals. The California Department of Health Services has initiated a dead bird surveillance program and has added WNV to the annual (May through October) surveillance of human encephalitis, mosquitoes, sentinel chicken flocks, and horses for the arboviruses Saint Louis Encephalitis (SLE) and Western Equine Encephalitis (WEE). A press release will be issued upon identification of WNV in California and/or in Orange County.

Surveillance for human WNV infection consists of reporting all hospitalized cases of encephalitis of unknown etiology and testing of these patients for WNV or SLE. Encephalitis of suspected infectious cause is a reportable condition under California law. Cases should be reported promptly to Orange County Epidemiology at (714) 834-8180. Testing of patient specimens can be arranged and is free of charge.

Laboratory testing for WNV

Cross-reactions with West Nile, St. Louis Encephalitis, yellow fever, dengue, and Powassan viruses can occur with some antibody tests (ELISA and hemagglutination-inhibition). Patients who test positive for antibodies to these viruses should be tested for specific neutralizing antibody.

IgM antibody to WNV appears in CSF as early as the first few days of illness. Paired acute (0-8 days after onset) and convalescent (14-21 days after the acute specimen) serum specimens are used to demonstrate seroconversion. A negative IgM on acute phase serum does not rule out WNV infection. IgM antibody can persist in serum for 12 months or longer and is, therefore, not necessarily diagnostic of acute infection. For these reasons, CSF IgM and acute and convalescent phase serum for IgG antibody are most useful for confirming WNV infection. In fatal cases, brain tissue, heart blood and buffy coat samples can be submitted. Polymerase chain reaction (PCR) tests of CSF may not be sensitive and should not replace tests for WNV antibody in CSF and serum. Call Epidemiology at (714) 834-8180 to arrange for testing.

Control measures

The most effective means for limiting the risk of WNV infection is through elimination of mosquito breeding sites, including even small amounts of standing water. Additional preventive measures include avoiding outdoor activity at the time when mosquitoes are most active, using mosquito repellent, and assuring that window and door screens are in good condition.

Additional resources

- Environmental Risk Analysis Program, Cornell University:
  http://www.cfe.cornell.edu/erap/wnv/index.html
- *Emerging Infectious Diseases*, West Nile Virus issue: Vol. 7, No. 4, Jul-Aug 2001, available at:
  http://www.cdc.gov/ncidod/EID/vol7no4/contents.htm
- National Library of Medicine Medline West Nile Virus site:
  http://www.nlm.nih.gov/medlineplus/westnilevirus.html
- West Nile Virus geographic distribution:
  http://nationalatlas.gov/virusmap/wn_st_sa.pdf

ORANGE COUNTY REPORTED CASES OF SPECIFIED NOTIFIABLE DISEASES

DISEASE	Year End (Weeks 1-52) Number of Cases by Year of Report 2001	2000	1999	1998
AIDS	250	322	307	302
AMEBIASIS	24	18	19	26
CAMPYLOBACTERIOSIS	262	314	246	284
CHLAMYDIA	5757	4575	4893	3497
CRYPTOSPORIDIOSIS	6	1	8	21
E. coli 0157:H7	13	30	11	11
FOOD POISONING OUTBREAKS	37	15	23	11
GIARDIASIS	170	216	231	272
GONOCOCCAL INFECTION	664	568	572	521
H-FLU, INVASIVE DISEASE (<30 y)	3	5	4	6
HANSEN'S DISEASE (LEPROSY)	0	2	1	4
HEPATITIS A (acute)	146	245	267	228
HEPATITIS B (acute)	48	58	55	90
HEPATITIS B (chronic)	1530	1780	1545	1692
HEPATITIS C (acute)	10	4	13	10
HEPATITIS C (chronic)	2519	2715	2477	1751
HEPATITIS OTHER/UNSPECIFIED	14	21	47	28
KAWASAKI DISEASE	16	17	18	16
LISTERIOSIS	12	13	9	12
MALARIA	12	15	13	16
MEASLES (RUBEOLA)	5	2	4	2
MENINGITIS, TOTAL	310	331	303	654
ASEPTIC MENINGITIS	271	262	238	586
MENINGOCOCCAL INFECTIONS	14	22	16	23
MUMPS	2	5	4	10
NON-GONOCOCCAL URETHRITIS	656	646	483	665
PERTUSSIS	21	18	51	13
PELVIC INFLAMMATORY DISEASE	59	68	23	59
RUBELLA	0	2*	0	0
SALMONELLOSIS	268	353	309	334
SHIGELLOSIS	138	197	180	202
STREP, INVASIVE GROUP A	31	33	31	63
SYPHILIS, TOTAL	233	215	236	178
PRIMARY	17	7	17	13
SECONDARY	22	21	18	11
EARLY LATENT	26	19	33	11
LATENT	8	5	5	0
LATE LATENT	159	152	157	135
CONGENITAL	1	10	4	8
NEUROLOGICAL	0	1	2	0
TUBERCULOSIS	278	246	246	298
TYPHOID FEVER, CASE	0	3	1	8

*Includes one congenital rubella case

County of Orange Health Care Agency

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